

509 take ASEs, up from 443 last year, about half passed

Upperclassmen told frosh 'nothing bad is going to happen if you fail'

By Melody Tan

More than 500 students, mostly incoming freshmen, spent time during orientation to undertake the Advanced Standing Exams. With an overall pass rate of 50.4 percent, the class of 2020 and assorted upperclassmen performed lower than last year's overall pass rate of 59 percent.

The number of people taking exams has increased — 509, as compared to 443 and 398 for 2015 and 2014 respectively. Combined, those 509 sat for a total of 955 exams this fall, averaging about 1.88 exams each.

Pass rates across the board are slightly lower than last year's, with the exception of the 18.03 Differential Equations exam's 90 percent pass rate.

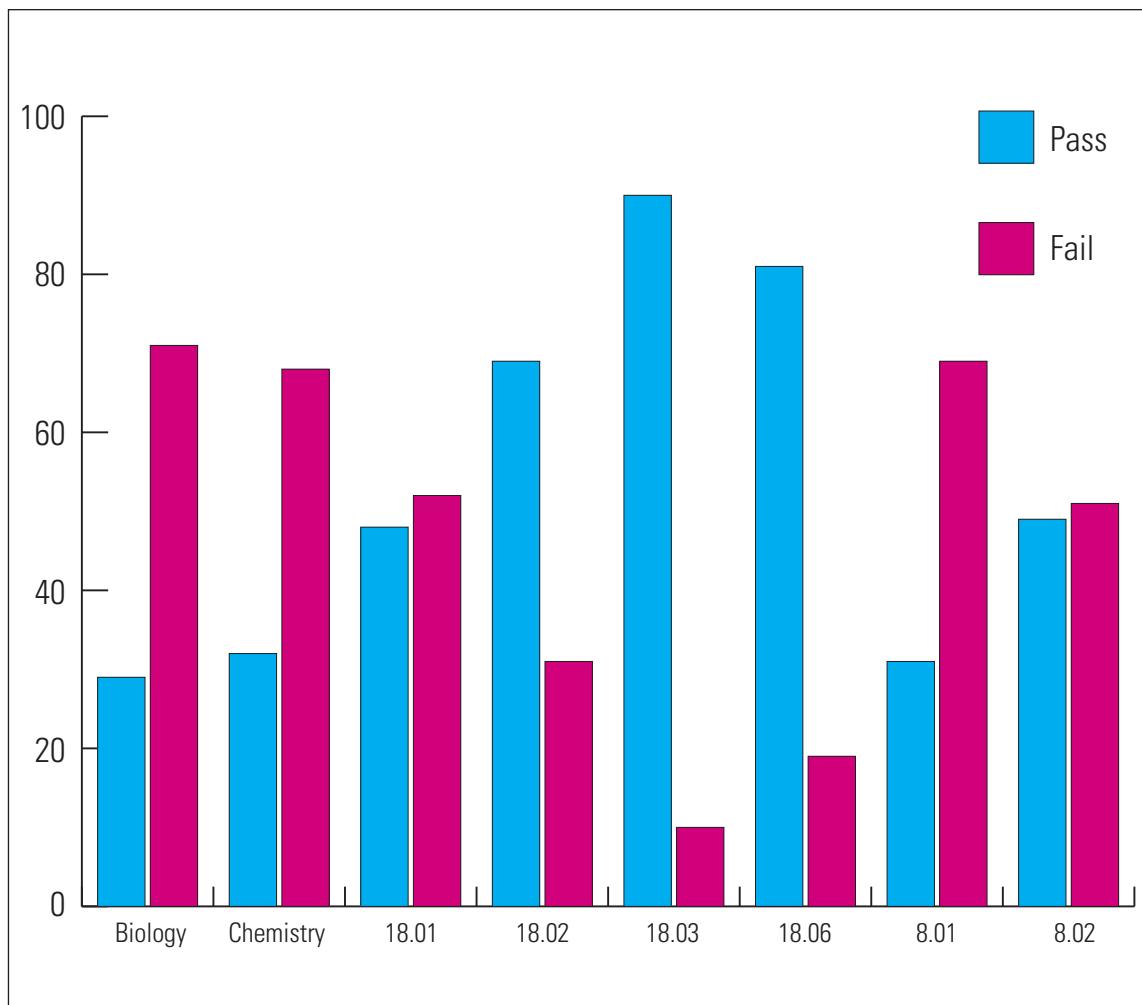
The 7.01x Introductory Biology exam's pass rate in particular saw a

drop, from 41 percent over the past five years to a 29.1 percent in 2016.

This difference may result from the large number of students who took the exam: 151 this year, compared to the 67 in 2014 who scored a pass rate of over 47 percent. In fact, the total number of passing students has actually increased from 32 in 2014 to 44 in 2016.

Meanwhile, 5.111 Principles of Chemical Science pass rates have remained high with 31.8 percent of students receiving a passing mark. 5.111 scores have soared for the past two years. In 2014, only 17.9 percent of students passed. In years before that, the average was closer to 14 percent.

For incoming freshmen, the ASEs are an opportunity to demonstrate proficiency in the GIRs and



INFOGRAPHIC BY VIVIAN HU

ASEs, Page 3

Freshmen on pass/no record have nothing to lose by taking an ASE; 481 of 955 attempts were successful.

Renovated Building 9 reopens under new name

On September 12, Building 9 reopened under a new name, the Samuel Tak Lee Real Estate Entrepreneurship Lab, after a major but rapid renovation.

In addition to various physical improvements, the STL Lab now groups together all of MIT's real estate and urban studies programs under the same roof.

The renovations were made possible after Samuel Tak Lee '62 made a \$118 million gift in January 2015. This historically large gift was intended to promote real

estate entrepreneurship at MIT.

The most visible changes were increased natural lighting in classrooms, large vistas onto Mass Ave, and the appearance of study spaces on the upper floors. The centerpiece of this effort is the second floor's "city arena": an interactive work-study space equipped with new presentation and communication technologies.

The renovations took only three months to complete, a schedule described as "beyond

aggressive" by Jim Harrington, director of facilities for the School of Architecture and Planning. To stay on schedule, construction continued on weekends and workers took double shifts.

A new HVAC system was installed on the roof of the building. The previous one was installed in the basement and used to suck in diesel fumes from nearby loading docks. The change of location required the ducts to be rerouted from a bottom-up to a top-down network.

To improve the building's energy efficiency, all 600 windows were replaced. This operation was done at night to minimize noise disruptions to nearby labs.

The STL Center was also upgraded to meet current accessibility norms. This involved installing a new elevator to give access to the 6th floor - a penthouse with a 360-degree view, updating ramps to allow for wheelchair access, and adding additional accessible bathrooms.

—Olivia Brode-Roger

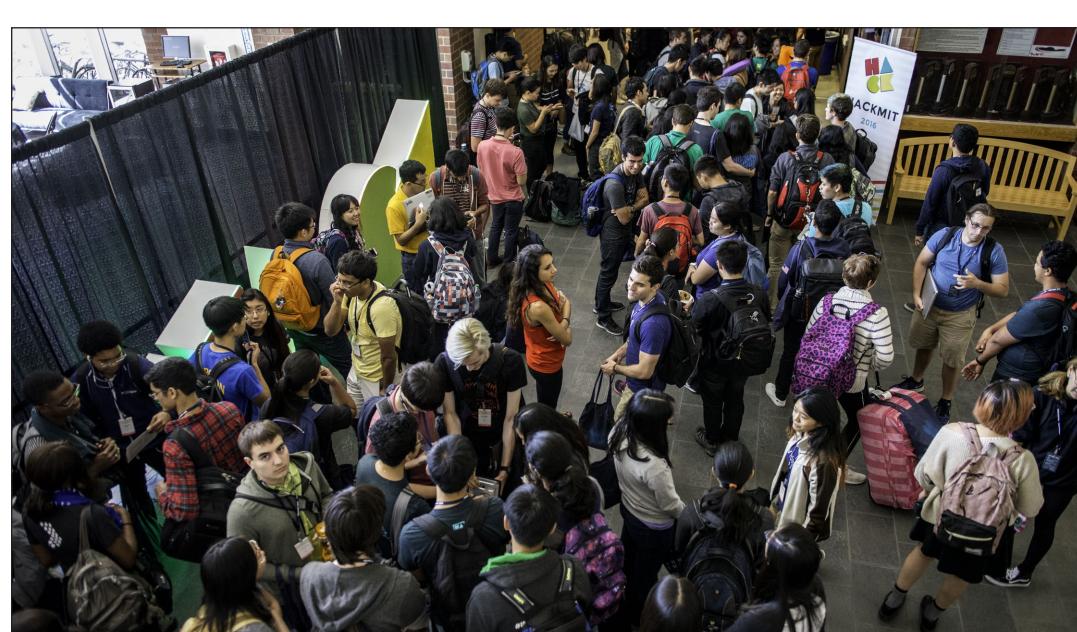
IN SHORT

A blood drive will take place in La Sala. It will be open from 8 a.m. to 1 p.m. today, and 1 p.m. to 6 p.m. Wednesday and Thursday.

Career Fair will be taking place Friday and is a student holiday. Visit <http://career-fair.mit.edu/> for more info.

Add date is Friday, Oct. 7. That is the last day to add a class or change its grading option.

Send news and tips to news@tech.mit.edu.



Students from MIT and other universities gather outside the Johnson Ice Rink before being let in for the 24-hour hackathon that took place this past weekend.

Alleged NYC bomber, wounded in gunfight, apprehended Monday

Authorities sent alert to millions of citizens, enlisting them in manhunt

By Marc Santora, William K. Rashbaum, Al Baker and Adam Goldman

THE NEW YORK TIMES

The man believed to be responsible for the explosion in Manhattan Saturday night and an earlier bombing in New Jersey, Ahmad Khan Rahami, was taken into custody Monday after he was wounded in a gunfight with police, law enforcement officials said.

The dramatic episode on a rain-

soaked street in Linden, New Jersey, came after police issued a cellphone alert to millions of residents in the area telling them to be on the lookout for Rahami, 28, who was described as "armed and dangerous."

The showdown started around 10:30 a.m. when a resident spotted a man sleeping in the doorway of a bar, officials said.

Capt. James Sarnicki of the Linden Police Department told report-

Bombing, Page 3

SHOKO AND KAZUO

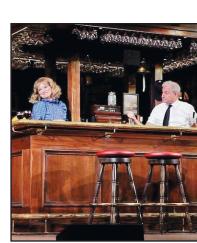
Making new friends in new places. **CAMPUS LIFE**, p. 8

YOU'RE REALLY CUTE, HI

Meeting random people in random places. **CAMPUS LIFE**, p. 8

LIGHT MATRIX

A waterfall, a starry sky, or a metaphor? **ARTS**, p. 7



FEELING ANONYMOUS?

A Beacon Street icon takes the stage. **ARTS**, p. 7

A BIG HITTER

Don't bet against Filiere. **SPORTS**, p. 10

SECTIONS

Fun Pages 4
Arts 7
Campus Life 8
Sports 10



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WEATHER

A clear and calm week

By Costa Christopoulos
STAFF METEOROLOGIST

A stalled frontal boundary along the east coast served as a trigger for sustained rainfall yesterday and this morning across the New England area.

Any rainfall is welcome as moderate to extreme drought conditions have developed in Massachusetts after a summer of unseasonably warm temperatures coupled with limited rainfall. Some locations in eastern Massachusetts are nearly one

foot below average for the year in terms of rainfall, putting the region at greater risk for crop losses and water shortages. Although it is unlikely that any single rain event will end advisory-level drought, a series of weak rain events like yesterday's can reduce the yearly rainfall deficit.

As high pressure builds this evening, Boston will enter a brief period of drier and warmer conditions. Daytime highs through Friday will be in the low 80s °F as mostly sunny conditions develop and a weak ridge takes hold.

Extended Forecast

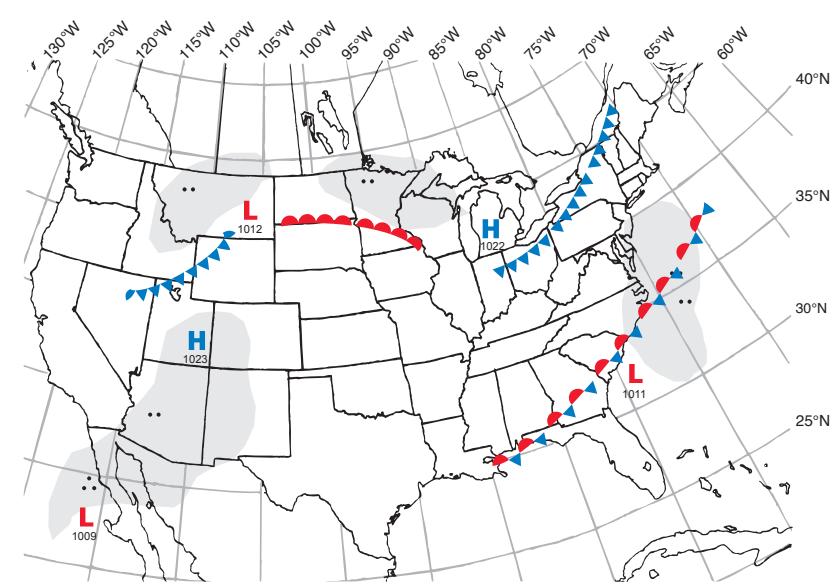
Today: Partly cloudy. High of 83°F (28°C). Winds southwest at around 5-8 mph.

Tonight: Partly cloudy. Low of 68°F (20°C). Winds southwest at 7-10 mph.

Tomorrow: Mostly sunny. High of 82°F (28°C). Winds west at 5-10 mph.

Thursday: Mostly sunny. High of 82°F (28°C).

Friday: Mostly sunny. High of 80°F (27°C).



Weather Systems	Weather Fronts	Precipitation Symbols	Other Symbols
H High Pressure	— Trough	Snow	Fog
L Low Pressure	— Warm Front	Rain	Thunderstorm
§ Hurricane	— Cold Front	Shower	Haze
	— Stationary Front	Light	
		Moderate	
		Heavy	

Compiled by MIT Meteorology Staff and *The Tech*

Situation for Noon Eastern Time, Tuesday, September 20, 2016

KENSHO

transform() the world to fit() the future

```
X = SparseAutoEncoder(num_hidden=10).fit_transform(features)
xycoords = TSNE(random_state=17).fit_transform(X)
DBS = cluster.DBSCAN().fit(X)
plt.scatter(xycoords[:, 0], xycoords[:, 1], color=colors[DBS.labels_])
```

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Frosh took ASE failures in stride

ASEs helped freshman 'keep mind on school' before semester

ASEs, from Page 1

move on to classes of more appropriate difficulty. The Tech spoke with several freshmen who had taken the exams.

During freshman fall, ASE results are scored using pass/no record. Mariam Dogar '20 said that older students encouraged her to take advantage of that fact.

"All the advice I got from upper-classmen was that... nothing bad is going to happen if you fail," Dogar said.

Jacob Miske '20 sat for both the Chemistry and Biology ASEs. Miske was not disappointed with his decision to take the exams.

"Both were very difficult; however, I felt like they were... a good way to keep my mind on school during the fun of orientation," he said.

He nevertheless lamented that studying for the exams took away from the time he had to attend other orientation activities. About his result, Miske said he's "better off taking [the classes] and being solid with the material."

Other freshmen shared this perspective: "I'm making sure my foundation is concrete," Jeba Sania '20 said.

CORRECTIONS

An article in last week's issue incorrectly stated that "S3 Staff Associate Joe Zimakas will be living in Senior House." In fact, he will hold office hours there, but will not live there.

An article on the front page of last week's issue, attributed to Melody Tan, should have been attributed to both Melody Tan and Santiago Ospina.

Officer struck, saved by vest, in gunfight

Authorities say man is responsible for two bombs in NYC, one in NJ

Bombing, from Page 1

ers that an officer approached the man, later identified as Rahami, and when he woke him, he saw that he had a beard resembling that of the man on the wanted poster.

The officer ordered Rahami to show his hands, Sarnicki said, but instead, he pulled out a handgun.

He shot the officer in the abdomen, Sarnicki said, but the bullet struck his vest.

"The officer returned fire," he said. Rahami fled, "indiscriminately firing his weapon at passing vehicles."

Other officers joined the chase, and Rahami was shot multiple times. At least one other officer was injured during the confrontation.

Shortly after 11 a.m., Rahami was in custody, seen by witnesses splayed out beside the street, hands cuffed behind his back and his shirt rolled up, officers standing over him with their weapons drawn.

Rahami, blood pouring from a wound in his shoulder and splattered on his face, was loaded onto

a stretcher and taken to University Hospital in Newark, New Jersey.

Rahami was identified by officials on surveillance video planting the bombs in Chelsea, both the device that exploded on 23rd Street and another that did not detonate a few blocks away. His fingerprint was also found on one of the pressure cooker bombs in Manhattan, according to a senior law enforcement official. Rahami was also connected to a bombing that took place earlier Saturday on the Jersey Shore.

The police believe that he was also responsible for a backpack full of pipe bombs found in Elizabeth, New Jersey, late Sunday.

President Barack Obama, who arrived in New York Monday to join other world leaders for the annual meeting of the United Nations General Assembly, made brief remarks on the attack.

"Folks around here, they don't get scared," Obama said. "They are tough, they are resilient, they go about their business every single day."

He also warned of the dangers of exaggerating threats or spread-

ing rumors.

Authorities began to focus on Rahami on Sunday as they reviewed hours of surveillance video taken from the Chelsea area.

On Sunday evening, increasingly confident that Rahami might be involved in the bombing, police rushed to act when they saw a car leaving an address associated with him.

The car was pulled over on the Belt Parkway near the Verrazano-Narrows Bridge in Brooklyn. Five people inside were questioned and later released.

Later on Sunday night, police got a report of a suspicious package near a train station in Elizabeth, New Jersey. The FBI, called in to investigate, dispatched a pair of robots to examine the bag and determined that it held five bombs, some of which were pipe bombs.

Around 12:30 a.m., the robots tried to clip a wire to disarm one bomb and accidentally detonated it. No one was injured.

The location of the bag was not far from where the Rahami family ran a restaurant, and before dawn federal agents and local police of-

ficers were swarming a residential neighborhood of low-rise apartment buildings, multiple-family homes and small businesses.

They searched the restaurant, First American Fried Chicken, and addresses where Rahami was reported to have spent time.

Even as police scoured the area near the Rahami restaurant, the suspect was seeking shelter from the morning rain under a doorway of a bar in the neighboring town of Linden.

Diego Jeronimo, 36, the owner of a store near where the gunbattle unfolded, said he opened his front door and saw a police car parked lengthwise across the street, an officer with his back to him with his gun drawn using the car as a shield. He heard around five shots.

"Then it calmed down a little bit, then we hear seven shots, but they were more distant," down the block, he said.

Shawn Styles, 30, who works at Linden Auto Body next door, said he saw numerous police vehicles whiz down the avenue.

"Then multiple, multiple shots," he said.

Solution to 8.01 from page 4

7	4	6	8	2	1	9	3	5
3	9	2	4	7	6	5	8	1
9	6	8	1	4	3	2	5	7
8	5	7	9	3	2	1	4	6
6	3	5	7	1	9	8	2	4
2	8	1	3	6	5	4	7	9
1	7	9	2	5	4	3	6	8
5	2	4	6	9	8	7	1	3
4	1	3	5	8	7	6	9	2

Solution to Slow Down from page 5

M	E	R	E	F	L	A	G	P	L	O	W	S
O	P	E	N	L	I	N	E	B	O	G	I	E
B	E	P	A	T	I	E	N	T	S	A	L	S
Y	E	S	M	O	M	A	S	K	F	E	E	T
E	A	S	T	E	M	O	N	T	O	D	E	
H	O	L	D	Y	U	R	H	O	R	S	E	S
J	O	N	E	S	P	S	A	L	M	M	A	O
O	W	E	D	W	H	E	T	W	E	H	R	B
A	D	O	M	E	A	T	S	P	I	L	S	P
D	O	N	T	B	E	T	O	H	A	S	T	Y
Y	A	P	E	T	O	H	A	S	T	N	A	S
S	P	A	R	E	T	O	H	A	S	T	N	Y
L	I	L	A	C	N	O	T	S	O	F	A	S
T	E	R	M	B	L	I	N	T	S	O	A	S
A	E	R	O	S	O	N	C	E	T	H	E	T

The New & Expanded MISTI-China Program! IAP and Summer Opportunities Info Meeting:

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Friday, Sept. 30, 6:00 to 7:30pm
MIT Building 10-105 (Bush Room)

Chinese food provided! Contact: seang@mit.edu

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4	2	5	6	3	1
2	6	3	4	1	5
5	3	6	1	4	2
6	4	1	2	5	3
1	5	2	3	6	4
3	1	4	5	2	6

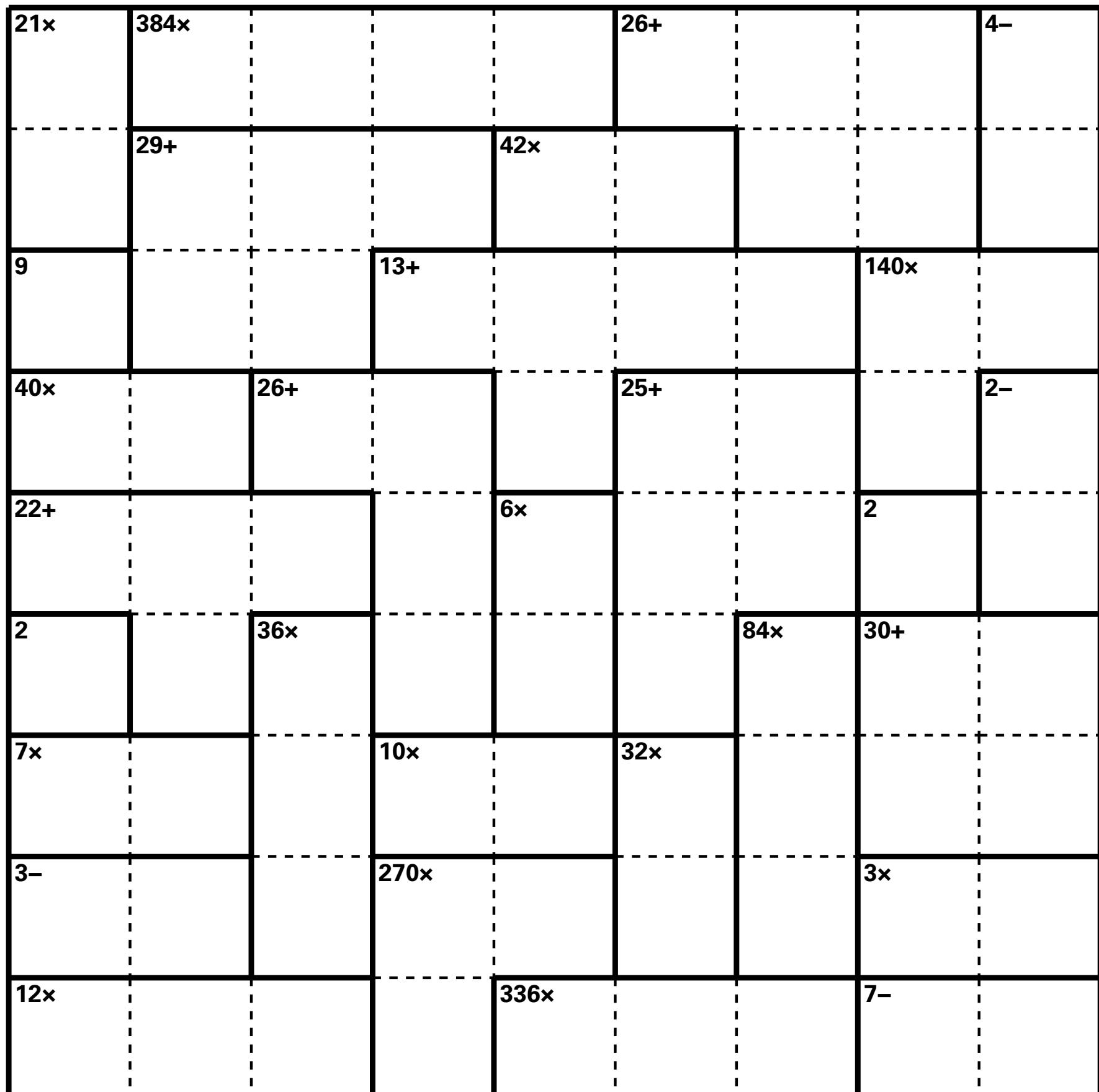
6	2	1	4	3	5
3	5	4	1	6	2
2	4	3	6	5	1
4	6	5	2	1	3
1	3	2	5	4	6
5	1	6	3	2	4

9	7	3	2	8	4	5	6	1
2	5	8	3	6	1	9	4	7
6	1	4	5	7	9	2	8	3
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3	4	6	9	1	5	7	2	8
7	8	1	4	2	6	3	5	9
5	9	2	7	3	8	6	1	4

9	7	3	2	8	4	5	6	1
2	5	8	3	6	1	9	4	7
6	1	4						

8.01

Solution, page 3



Instructions: Fill in the grid so that each column and row contains exactly one of each of the numbers 1–9. Follow the mathematical operations for each box.

Saturday Stumper

Solution, page 3

ACROSS

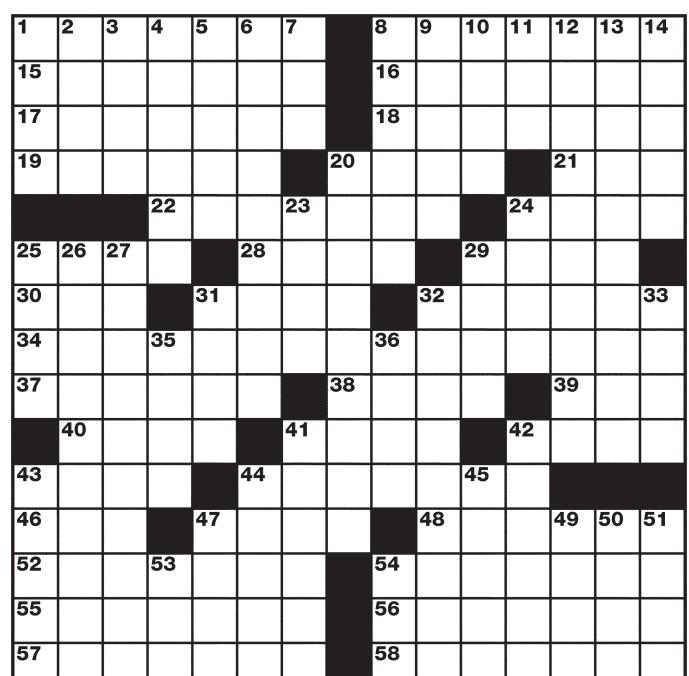
- 1 Biathlon, in part
- 8 Cain descendant, per ancient literature
- 15 Takes it slow
- 16 Start of a stretch
- 17 Taking it slow
- 18 Only female role in a certain Bard romance
- 19 Wild one
- 20 Sounds that a toy makes
- 21 "Thinks what ne'er was, _____ is": Pope
- 22 Unexpected break caused by a fall
- 24 Arier of the Sharktopus franchise
- 25 Kidder's comment
- 28 Skunk
- 29 "Side missions" in the video game L.A. Noire
- 30 Early investor in Disneyland
- 31 Archaeological treasure
- 32 Google deliveries
- 34 Disapproval for a change
- 37 Exotic diagnoses, in medical slang

38 Palm, perhaps
39 ABBA compilation with
 “Gracias Por La Música”
40 Golf pro with a Loudmouth
 clothing line
41 Town on Mauna Loa
42 Island seat of Clan
 MacLeod
43 First beverage brand sold
 in six-packs
44 Chicagotraveler.com
 offering
46 Capitol Records buyer in
 1955
47 Bottles used by
 locksmiths?
48 1950 classic its author
 wanted to call Mind and
 Iron
52 How sets begin
54 Explanation for disorder
55 Betray awe
56 What anchors cover
57 Silly String, essentially
58 Get no help

DOWN

1 Knitter beginner’s challenge

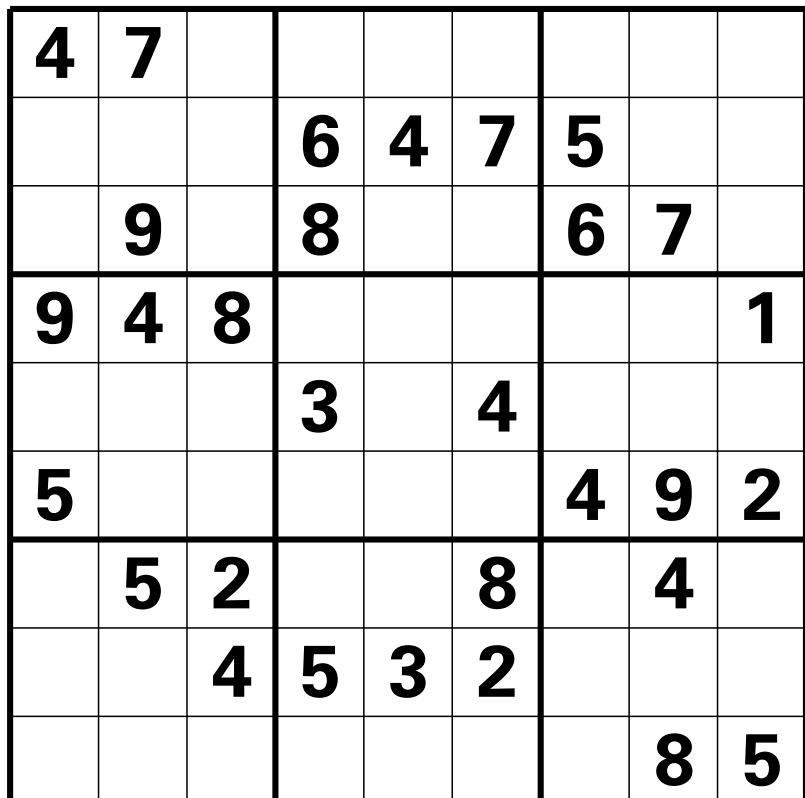
- 2 Hindu Cupid
- 3 Penguin designation
- 4 Liking
- 5 Like kiwifruit
- 6 They ran on Rolls-Royce engines
- 7 Romney's major at BYU
- 8 Long-term trainee
- 9 Make tangible
- 10 All
- 11 '30s "fair competition" agcy.
- 12 Major scrape
- 13 "That's all, folks"
- 14 Stone's father in . . . Spider-Man
- 20 Radio format for those 25 to 55
- 23 Locust, for instance
- 24 Imprecision, for short
- 25 Queen Bey's consort
- 26 "Apt" instrument in Bach's St. Matthew Passion
- 27 Key inspector
- 29 Adverb from Old English for "shelter"
- 31 Dr. Watson outburst
- 32 Six-pack descriptor



33 Cherry cousin	45 Excessively charming
35 Google deliveries	47 Up for __ (gossipy?)
36 Excessively charming	49 Accessory with metal aglets
41 Judean sage	50 14th anniversary stone
42 Exhibits	51 Dome for some, perhaps
43 SkyTeam member	53 Broody or pensive
44 Resealable bag material, for short	54 Christmas cookie shape

7.012

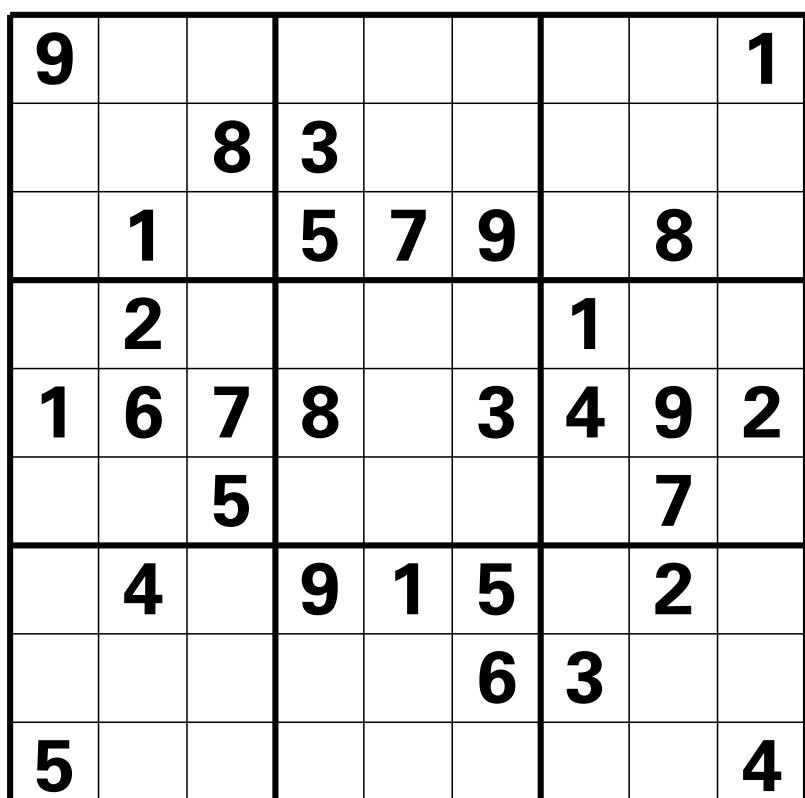
Solution, page 3



Instructions: Fill in the grid so that each column, row, and 3 by 3 grid contains exactly one of each of the digits 1 through 9.

18.02

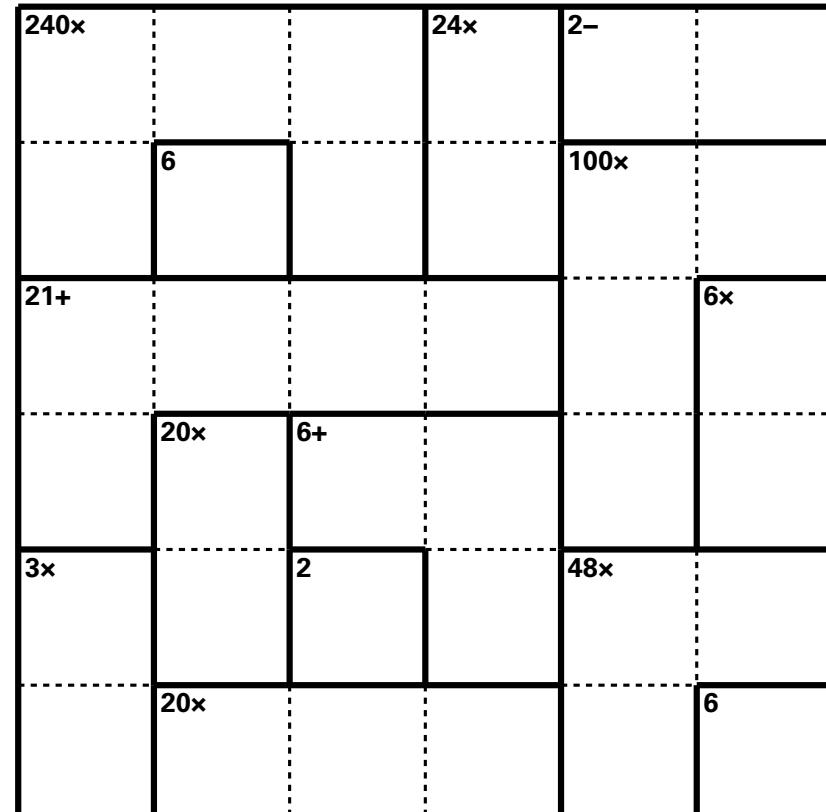
Solution, page 3



Instructions: Fill in the grid so that each column, row, and 3 by 3 grid contains exactly one of each of the digits 1 through 9.

3.091

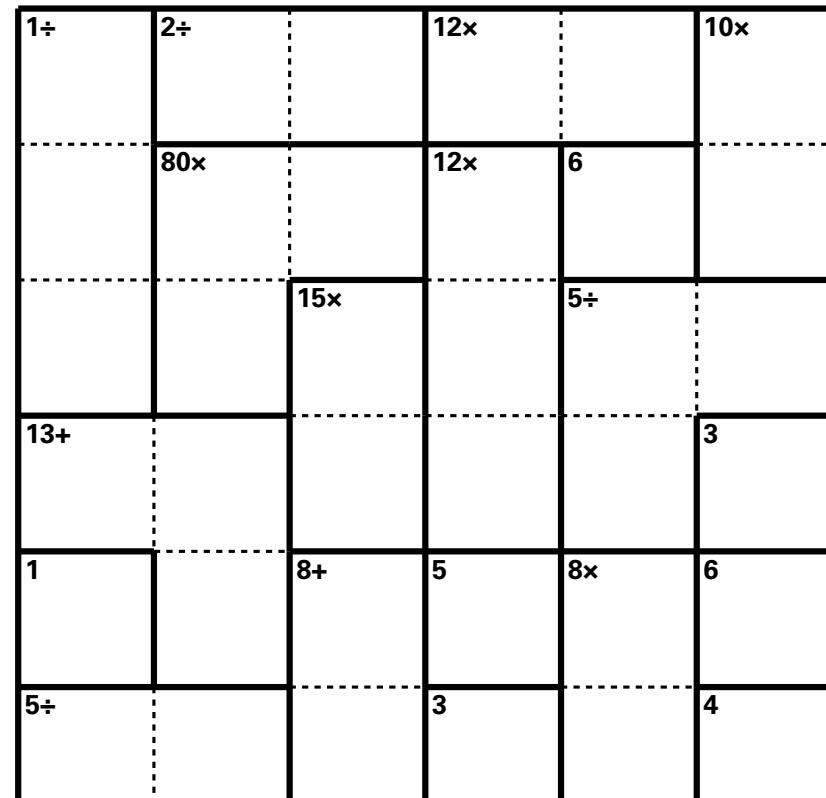
Solution, page 3



Instructions: Fill in the grid so that each column and row contains exactly one of each of the numbers 1–6. Follow the mathematical operations for each box.

5.111

Solution, page 3



Instructions: Fill in the grid so that each column and row contains exactly one of each of the numbers 1–6. Follow the mathematical operations for each box.

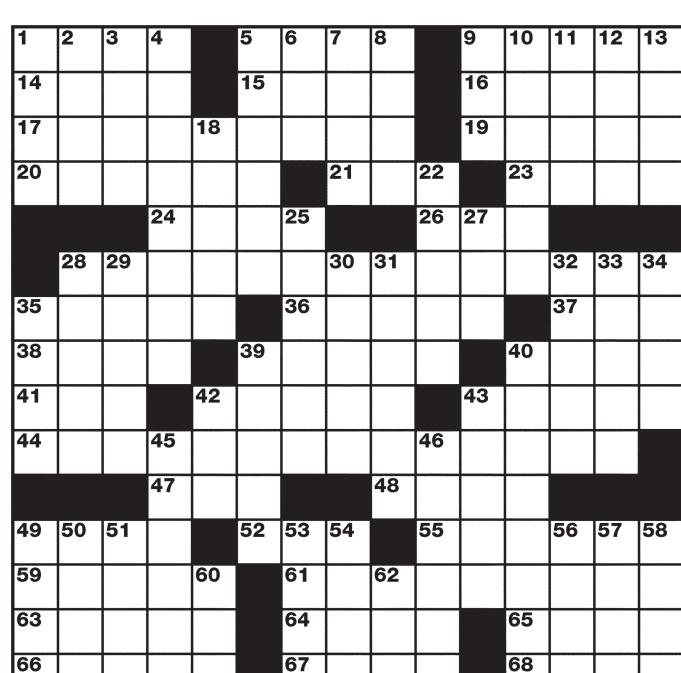
Slow Down by Billie Truitt

Solution, page 3

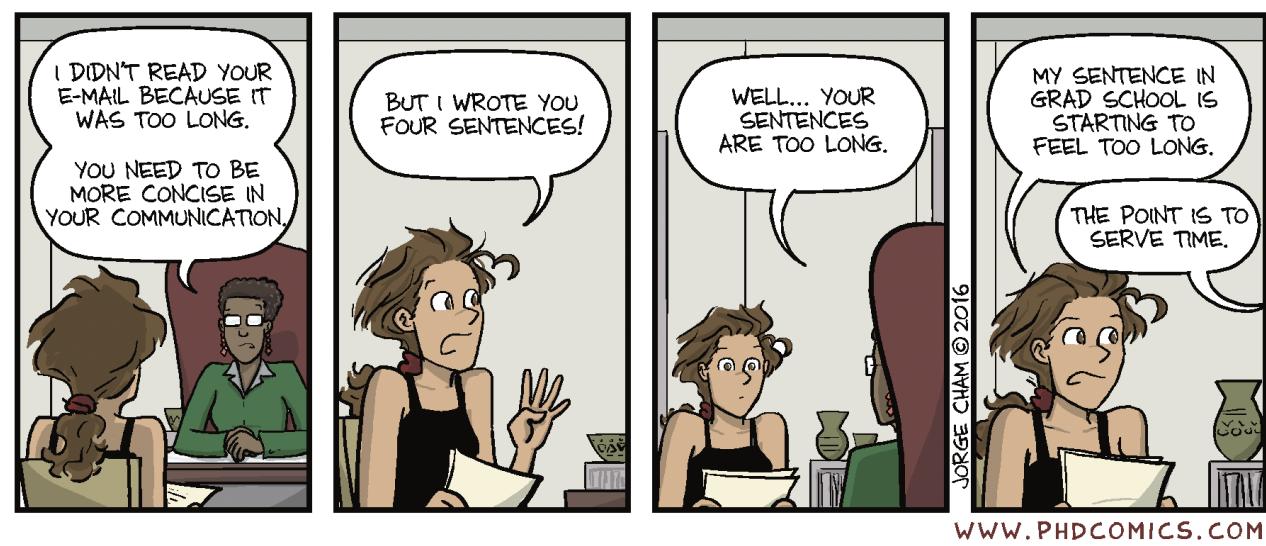
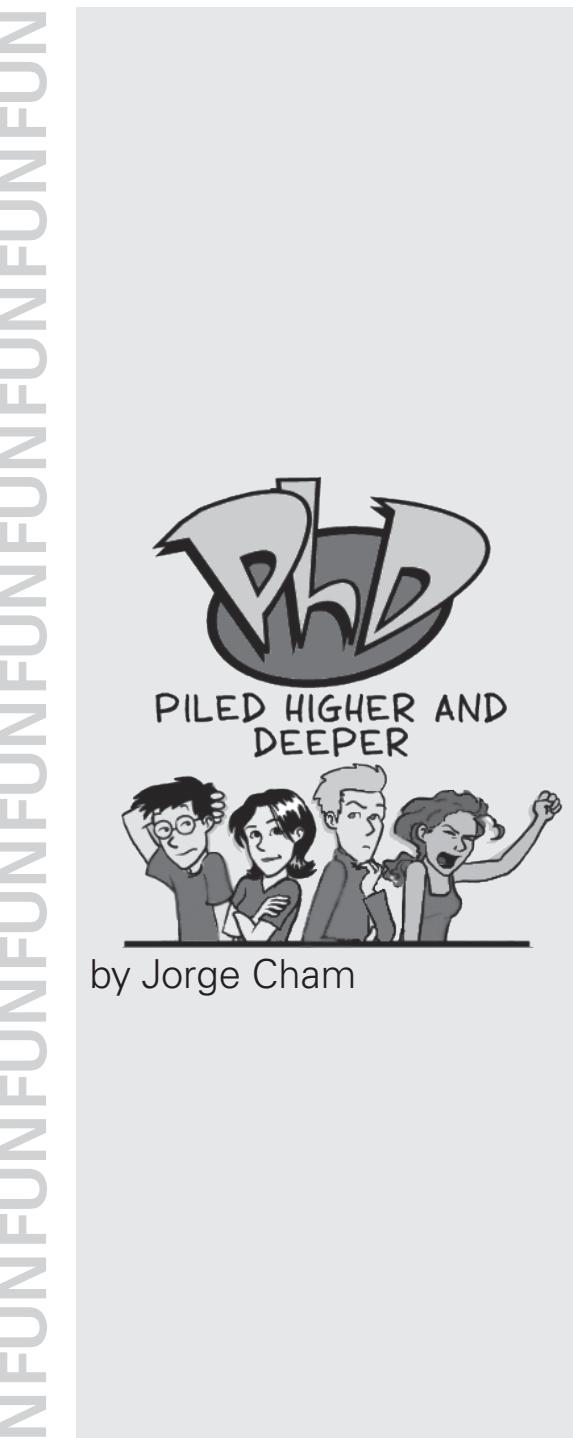
ACROSS

ACROSS	DOWN
1 Insignificant	47 Talk too much
5 The Stars and Stripes	48 Thumbs-down votes
9 Prepares acres for planting	49 Go a few rounds
14 " __ sesame!"	52 Brother or sister, for short
15 Fishing cord	55 Keep from progressing
16 Casablanca star, familiarly	59 Purple flower
17 "Slow down"	61 "Slow down"
19 Taco chip dip	63 Silly
20 Obedient child's response	64 Aluminum wrap
21 Invite	65 Frozen desserts
23 Sneaker inserts	66 Green sauce
24 Toward Spain	67 Formerly
26 Rhyming tribute	68 He and she
28 "Slow down"	
35 Raiders of the Lost Ark	
hero	
36 Biblical song	1 Melville's __-Dick
37 '70s Chinese leader	2 Olympics sword
38 Was in the red	3 Workout count, briefly
39 Sharpens, as an appetite	4 Coated, as some cookware
40 Oregano, e.g.	5 Easily broken
41 Ruckus	6 Polygraph detection
42 Butcher's wares	7 Author Quindlen
43 Pharmacy stock	8 Understands
	9 Downton Abbey airer

- 10 Do-nothing
- 11 Stare at
- 12 In the know
- 13 Bench or chair
- 18 Warty hoppers
- 22 Competitor of Target
- 25 Accessory for Mr. Peanut
- 27 Suffix for free or fan
- 28 Folksy greeting
- 29 Result of a leadoff single
- 30 Of __ (helpful for)
- 31 Informs against
- 32 Refine metal
- 33 Too soon
- 34 Sheds tears
- 35 The Grapes of Wrath
surname
- 39 Sheds tears
- 40 Temper tantrum
- 42 Marketing deg.
- 43 Words on a check
- 45 Dictator
- 46 Give grief to
- 49 Minor error
- 50 Cone-bearing tree



51 Word of regret	57 "Understood"
53 Facts and figures	58 Online crafts store
54 Timely benefit	60 Boardroom VIP
56 ... 1 (speed of sound)	62 ... too too



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A cartoon illustration of a person in a red shirt holding a clipboard and a pen, looking at a document. The text "JORGE CHAM" is written vertically on the left side of the image.

[1684] Rainbow



OH, GOOD! HEY, WHAT
ABOUT THAT SECOND BOWL
ABOVE THE FIRST ONE?



WHAT ABOUT THAT THIRD FAINT BOW NEAR THE SUN?



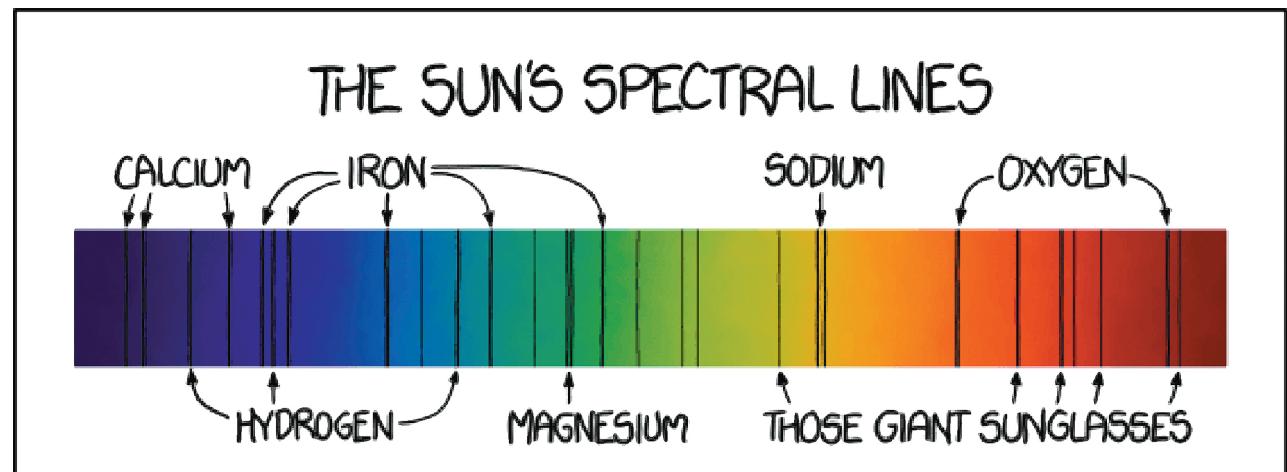
AND THE LITTLE
RAINBOW CLOUDS
ON EITHER SIDE OF-



Recently, in a few thousand years you'll invent a game called SimCity which has a disaster button, and then you'll decide to ban it.



[1733] Solar Spectrum



I still don't understand why the sun paid the extra money for publications leases.

A MISTI SUMMER

Dinner in a Japanese household

Experiencing Japan outside of my internship

By Samantha Amey-Gonzalez

During my last week participating in MISTI Japan, I visited the National Astronomical Observatory in Mitaka, an open research facility that gives public access to their 65 and 20 cm refractor domes. I was never really interested in space, but Shoko, the kind old woman I visited that summer, had been there five times before and wanted to show me around. Shoko is married to Kazuo, a computer scientist who had worked at MIT around 20 years ago. I was luckily connected to her family after talking to a librarian at an MIT therapy dog event for the first time the semester before.

I only got to see Shoko and Kazuo twice while I was living in Yokohama, Japan, since I spent most of my weekends exploring other parts of the country with other MISTI interns, coworkers, Japanese students, and professors. Still, those were two of the most memorable days of my summer. The moment I walked through the door of their tiny traditional home, Shoko sighed in relief and said she was so glad I could make the time to meet them.

Afraid that my presence would be awkward with a couple that I had no real prior connection to, I barely ate the dinner of rice, fried chicken, potato salad, and home-made yogurt they had set out for me. They were both very excited to see me and meet another MIT student. They had only lived in Massachusetts for two years, but they loved the community and were eager to talk about their experiences there.

Kazuo proudly puffed out his chest when I commented on his Boston t-shirt. Among the pictures of family members and posters of events they had gone to with their daughter plastered on the walls, I noticed a small, framed map of Boston. They had done the same things I did my freshman year — they, too, struggled to sail a boat on the Charles, walked around Boston Common, and visited the MFA, among other things.

I was amazed at how welcoming and kind they were with someone they had just met. The librarian who connected me with them wasn't even a close friend of mine (yet! Now I look forward to meeting with her whenever I have some free time). She had lived near them while they were at MIT, and she said they were really close to her heart.

I got so much out of my three months alone in a foreign country because I made the effort to reach out and meet new people.

I was initially a bit uncomfortable and closed off because I was late, and I didn't see what I, a random undergraduate, could provide for them other than take a picture together as per the librarian's request. I didn't even have to think before answering basic questions that they asked in Japanese — questions about my major, school year, my reasons for coming to Japan, and so on. I had already spent a month answering these

questions almost daily. When they asked about my internship, however, I lit up.

I loved talking about my work at Jasmine, a small animal cardiology clinic in Yokohama. Before I started, I hadn't expected to do much. However, after a month of studying the professional language and the field, I was researching red blood cell levels post-surgery, restraining dogs for X-rays, practicing echocardiograms, performing basic injections, doing blood tests, and writing down notes during surgeries in Japanese. I wouldn't have been able to meet these veterinary surgeons from Japan, Hong Kong, Taiwan, and France so easily if I had stayed in the U.S. this summer.

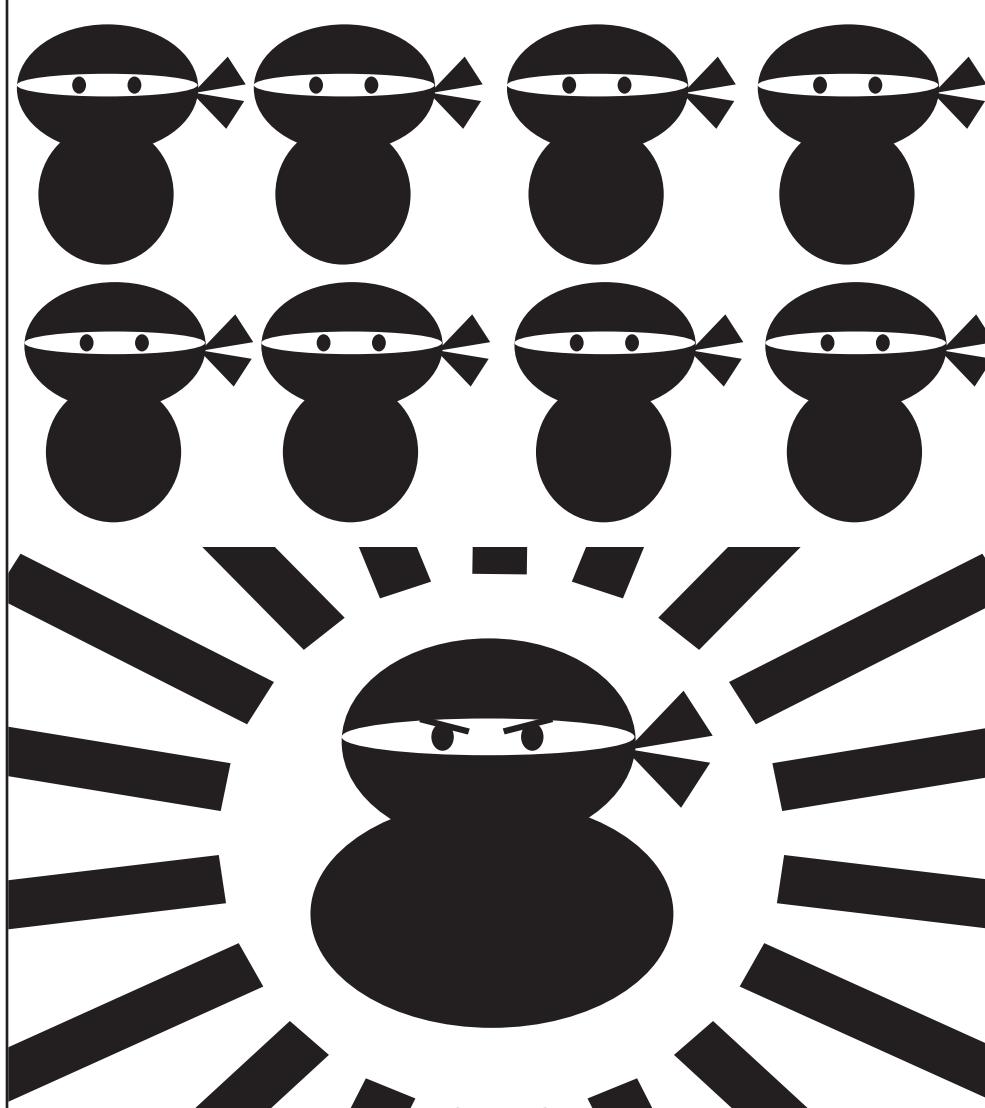
As I talked about this work during the dinner, I took out my heart sketches and started describing how some of the surgeries worked. Kazuo and Shoko had the same

On my second visit, I could see why Shoko loved taking the scenic 20-minute bike ride to the observatory, peeking through the domes, watching videos on the history of telescopes, and conversing with the employees there. The delicious soba we had for lunch at a nearby temple was also a great incentive to keep coming back. Towards the end of my day with Shoko, after practicing tea ceremony and tai chi for the first time, I told her that I was sad I only had two years left at MIT. My time in Japan reminded me that I had so much more to learn. Her response was this:

"I'm 60 years old, and I'm still learning and teaching myself new things. You're only 20. You have plenty of time!"

My summer in Japan wasn't so amazing just because of my internship, the food, or the fact that it was completely paid for by MIT. I got so much out of my three months alone in a foreign country because I made the effort to reach out and meet new people. If I had only spent time with the other MIT interns, I wouldn't have had amazing home cooked meals like the one I had with Shoko and Kazuo.

The MIT International Science and Technology Initiatives (MISTI) program is MIT's flagship international education program. If you can see yourself joining a team of BMW engineers in Munich, teaching technology entrepreneurship in South Africa, testing solar panels in Israel, or tackling a research problem at the Curie Institute in Paris, then you're ready to join MISTI. Learn more at mist.mit.edu.



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MIT APPLICATION ESSAYS THAT WORKED

I love meeting random people

Editor's note: This is part of a series of MIT application essays submitted by students who were later admitted to the Institute. The following prompts are from the 2013-14 admissions season.

Prompt

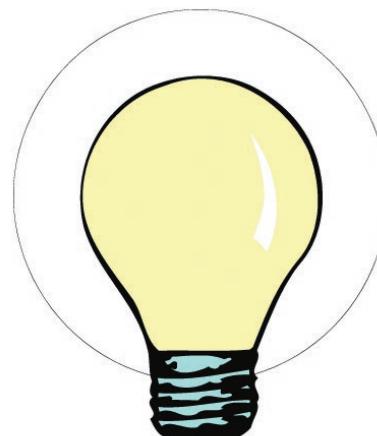
We know you lead a busy life, full of activities, many of which are required of you. Tell us about something you do for the pleasure of it. (100 words or fewer)

Response

"I forgot my pick-up line; you're really cute. Hi." I love meeting random people. I've found an unexpected compliment can

make someone's day, and random conversation can be rejuvenating to anyone. If I feel social anxiety, I find overcoming it is exhilarating. Sometimes, I'll walk around the local Walmart just to say "hi" to everyone. I've realized many people are interesting and social, eliminating my prejudices. I now easily approach people to discuss ideas. At robotics competitions, I talk to everyone and learn from them. Through meeting random others, my appreciation of people and their stories has surged.

—Kevin Palisoc '18



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Amid rocky election, some question ballot security

Official: Donald Trump is wrong when he says the election is being rigged, 'notion is 'ridiculous'

By Lynn Hulsey
DAYTON DAILY NEWS

DAYTON, Ohio - Efforts by hackers to infiltrate elections systems in Arizona and Illinois this summer, and the successful hack of the Democratic National Committee emails - allegedly by Russians - have officials and voters on edge as the Nov. 8 election nears.

"It causes panic in the public," said Tim Mattice, executive director of The Election Center, which represents 1,300 state and local election officials and vendors. "People think, 'Oh my goodness ... my vote is not going to count.'

Statements by Donald Trump, the Republican nominee for president, that only a rigged result could cost him the election have brought a strong response from officials like Ohio Secretary of State Jon Husted, who runs elections in the state.

"Donald Trump is wrong when he says the election is being rigged," said Husted, a fellow Republican. "It's a ridiculous notion."

Husted and national elections experts say a number of safeguards protect ballots from outside interference, including a federal law prohibiting connecting any voting machine or vote tabulation machine to the internet, which would appear to thwart hacking.

But officials fear that voter confidence is being shaken in an election year that is highly unusual if not unprecedented.

"Donald Trump is wrong when he says the election is being rigged. It's a ridiculous notion."

"We want to reassure the public that our election infrastructure is set up in a way that it is votes and votes alone that will determine the outcome of our election," said Kay Stimson, communications director for the National Association of Secretaries of State.

Ohio officials say multiple levels of security - human, mechanical and technical - are in place to protect the machines from tampering, catch malfunctions and ensure all legitimate votes are counted.

"Your vote will count if you cast it in the United States," said Jocelyn Bucaro, deputy director of the Butler County Board of Elections.

"There are checks and balances throughout the way," said Jason Baker, Clark County Board of Elections director.

No 'DEFCON 3'

Elections system researcher Merle King said he is confident in the country's voting systems.

"I have not gone to DEFCON 3 yet," said King, executive director of the Center for Election Systems at Kennesaw State University in Georgia. "I don't think we are going to see attacks and hacks that alter the outcome of the election that are undetectable."

But King and others said there are vulnerabilities in other parts of the nation's election systems, specifically voter registration, online ballot delivery and Election Night vote reporting, which does use the internet. Of particular concern is that online voter registration rolls could be vulnerable to hackers, and experts say more needs to be done to make sure that the information in those databases is not compromised or used for fraudulent purposes on Election Day.

"That's our worst nightmare," said Matt Roberts, spokesman for Arizona Secretary of State Michele Reagan. "Because if somebody were to manipulate data within the registration database - say somebody just changes everybody's name to Lucille Ball - that would be a big problem. It would be a catastrophe for elections officials, especially around an election."

The FBI is investigating hack attempts of elections systems in Arizona and Illinois that occurred in June and led to temporary shutdowns of both states' online voter registration systems.

In Arizona the hacker never got beyond the Gila County elections office computer, which had a compromised user name and password. In Illinois, interlopers penetrated the state's online voter registration system but were caught that same day as they attempted to pull data, said Ken Menzel, general counsel for the Illinois Board of Elections. He said no voter information was changed in what was the first incursion in the decade the database has existed.

"They've been trying for 10 years," said Menzel. "It's been constant all along. I think any entity that has personal or financial information is subject to a similar sort of thing."

Voter registration databases

contain a trove of public but personal information that could be valuable to hackers interested not just in election mischief but also identity theft. The hacks were a "wake-up call" to state officials, said Stimson, and she anticipates states will increase efforts to protect against incursions.

Multiple backups

Husted said hack attempts are one reason why states like Ohio should be cautious in heeding calls to allow online voting.

He did note that official registration records are not online, and even when the state begins allowing people to register online in 2017, the local board offices will maintain the official record.

The electronic poll books used on Election Day are loaded with each county's voter registration information prior to the election and never connected to the internet, said Steve Harsman, deputy director of the Montgomery County Board of Elections. If an attempted hack occurred to the data, it would likely be discovered and corrected before ePoll books were used on Election Day, Harsman said.

Matt Masterson, a commissioner at the U.S. Election Assistance Commission, said election night reporting of results - where local boards send their results to the state or otherwise share them publicly - is another area of concern. The danger is that hackers could somehow overwhelm the system and keep results from posting or tamper with them, said Masterson, a former staffer in Husted's office.

However, such an attempt would not change the actual election results, he said, because the

records would still be maintained at local elections offices.

Ohio is one of 45 states that have paper backups of election results. Ohio's results are also electronically backed up in multiple places, including two copies that are taken to off-site locations, officials said.

In 2012 the FBI alerted Mont-

Multiple levels of security are in place to protect the machines from tampering and ensure all legitimate votes are counted.

gomery County of an attempt to overload the board's website with traffic to keep results from being reported, Harsman said. The data processing department monitored traffic and the threat did not materialize.

Ohio has an additional safeguard. To get local results onto the Secretary of State website on election night Husted distributes thumb drives, which are inserted into the vote tabulation machine only once and then used to upload the latest election results to a secure computer controlled by his office. The thumb drives cannot be used again.

Stimson said the practice has become standard throughout the United States.

"Ohio is certainly a state that we recommend other states talk to, not only because it is regarded as a state that runs elections well

but also because they've been scrutinized so well for so many years," she said. "They're tested."

Aging machines

Some elections officials are growing increasingly concerned about aging voting machines causing Election Day malfunctions, such as vote flipping on poorly calibrated touch screens that cause people to cast unintended votes.

"Technology has changed dramatically in the last decade, but America's voting machines are rapidly aging out," said a 2015 report by the Brennan Center for Justice at New York University School of Law.

The current crop of voting machines is mostly a mix of electronic touch screen and optical scanning equipment used with printed ballots. Much of the equipment dates to 2006, when federal funding covered much of the cost after punch ballots went out of favor in the wake of the disputed 2000 presidential election and the famous "hanging chads."

But unlike punch ballots - essentially a paper ballot loaded into a plastic frame - the new voting equipment is electronic and has a shelf-life. Replacing the equipment could cost an estimated \$1 billion nationwide, according to the Brennan Center, and officials say there is no federal money in sight.

In Ohio, elections and state officials are working on a plan that would replace the machines in 2018 or 2020, with the state and counties sharing the replacement costs. Husted estimated the cost statewide to be as high as \$150 million.

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Cool, classy parties where friends meet, mingle, and dance!

Austin Filiere '18 shines in summer Cape Cod league

By Souparno Ghosh
SPORTS EDITOR

For MIT students, summer is often a time for that dream internship or a chance to travel abroad.

For Austin Filiere '18 it was an opportunity to match his wits against pitchers from Division I schools in the Cape Cod Baseball League.

The Cape Cod League has grown in prominence in recent years. All-stars Jackie Bradley Jr. and Steven Wright from the current Red Sox team have played in the league recently.

So how challenging was it for the MIT third baseman?

He belted a 3-run homerun in the second pitch he saw.

Filiere graduated from Hamilton High School in Arizona, helping his team win the State Championship in his senior year. In his first year at MIT, he shattered most offensive school records for a rookie including hits, RBIs, homeruns, and runs and was named Division III rookie of the year.

"I think my biggest takeaway from this summer is that baseball is very hard to play at any level and requires constant adjustments."

However, making the jump from playing in Division III to facing Division I pitchers had to have been intimidating. So when exactly did Filiere know he fit in the clubhouse with the Harwich Mariners (the team he represented in the Cape Cod League)?

"Hanging around with guys and taking BP [batting practice] with them, I knew I could play with them," remarked Filiere.

"There are good pitchers in Division III. I would say the difference is in the depth. In the summer you went up against strong pitchers daily," responded Filiere.

when asked about the difference in levels of competition he faces during the school year as opposed to the one he faced in the summer.

As for the mentality in the clubhouse, "I think it is a little different," Filiere said. "Here you spend so much time with school-work, whereas in the summer, you spent most of the day on the field. With MIT though, you live and spend so much time with your teammates that toward the end of the season, you want to win a little more," added Filiere.

During his time with the Mariners he had to deal with defensive shifts that opposing teams would implement. He also transitioned from being a third baseman to a left-fielder and performed consistently at a high level to earn All-League honors.

He belted a 3-run homerun in the second pitch he saw.

"I think my biggest takeaway from this summer is that baseball is very hard to play at any level and requires constant adjustments," observed Filiere.

One gets a very unique insight into how one of MIT's top sluggers approaches baseball when one hears him talk about his favorite players.

"I have quite a few players that I like. I like Evan Longoria [Tampa Bay Rays 3B]. I really liked the adjustments [Blue Jays' 3B, Josh] Donaldson made [to his swing] prior to emerging as one of the top sluggers in the American League."

As a Course 15-2 major, Filiere likes crunching the numbers. While playing this summer he would do his homework scouring through the scouting reports of pitchers he would face. Filiere hopes to work in baseball analytics one day.

More than playing in the major leagues?

"Oh no, I would definitely like to play!" quips Filiere.

Having hit every level of pitching he has faced thus far and holding his steadfast belief in constantly adapting, MIT's star slugger is not someone to bet against.



Cole S. Baker '20 makes a running play during last Saturday's game against Rensselaer Polytechnic Institute. The Engineers lost 31-10.



Olivia M. Struckman '18 dribbles the ball down the field during last Tuesday's game against Roger Williams University. The Engineers won 3-0.

SPORTS BLITZ

Men's soccer (4-1) defeated Emerson College 1-0 following a strike from Gregory Hui '18 in overtime.

Women's soccer (4-3) dropped a double overtime game to WPI 2-1. Emily Berzolla

'20 scored her first goal for MIT.

Women's volleyball (9-2) defeated Springfield 3-1. Megan Gebhard '17 led the Engineers with 18 kills.

Field hockey (6-1) defeated Springfield 4-2. The Engineers scored 3 times in 9 second-half minutes to put the game be-

yond reach.

Women's tennis (4-0) maintained their dominant start to the season with a 9-0 victory over Mount Holyoke.

Football (0-3) lost their third straight home game to begin the season with a 31-10 loss against RPI.

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FALL CAREER FAIR

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CAREER WEEK SCHEDULE

MONDAY, 9/19

Coffee Chat: United States Navy
11:00am-12:00pm, W20 - 407

Coffee Chat: Delphix
11:00am-12:00pm, W20 - West Lounge

Coffee Chat: Facebook
12:00-1:00pm, W20 - 491

Coffee Chat: OpenEye Scientific Software Inc.
12:00-1:00pm, W20 - 20 Chimneys

Coffee Chat: Analysis Group
12:00-1:00pm, W20 - Private Dining Room 2

Info Session: Aetion
6:00-7:00pm, 2-190

Info Session: Microsoft
8:00-9:00pm, 4-370

TUESDAY, 9/20

Coffee Chat: Tech Square Trading
11:00am-12:00pm, W20 - West Lounge

Coffee Chat: Kensho
11:00am-12:00pm, W20 - 20 Chimneys

Coffee Chat: Zx Ventures
11:00am-12:00pm, W20 - Mezzanine

Coffee Chat: Refdash
12:00-1:00pm, W20 - Private Dining Room 2

Coffee Chat: InterSystems
12:00-1:00pm, W20 - Private Dining Room 1

Info Session: athenahealth Inc.
6:00-7:00pm, 2-190

Info Session: Woobo Inc.
8:00-9:00pm, 4-237

WEDNESDAY, 9/21

Coffee Chat: Palantir Technologies
11:00am-12:00pm, W20 - 407

Coffee Chat: Jetbrains
12:00-1:00pm

Coffee Chat: Oracle
12:00-1:00pm, 32 - TSMC Lounge

Coffee Chat: IBM
1:00-2:00pm, W20 - 407

Coffee Chat: Hudson River Trading
1:00-2:00pm, W20 - 20 Chimneys

Coffee Chat: Appian Corporation
2:00-3:00pm, W20 - 20 Chimneys

Info session: Jane Street
4:00-5:00pm, W20 - 20 Chimneys

Coffee Chat: Heap
6:00-7:00pm, W20 - 20 Chimneys

Info Session: Oracle
6:00-7:00pm, 2-190

Info Session: The Boeing Company
6:00-7:00pm, 4-237

Info Session: Yext
7:00-8:00pm, 6-120

Coffee Chat: Exxon Mobil Corporation
7:00-8:00pm, W20 - 20 Chimneys

Info Session: Citadel
7:00-8:00pm, 4-270

Info Session: WorldQuant
8:00-9:00pm, Location: 4-237

Info Session: Stripe
8:00-9:00pm, 2-190

Info Session: Shell Oil Company
8:00-9:00pm, 32-141

Info session: Wealthfront Inc
9:00-10:00pm, 6-120

Info Session: GoDaddy
9:00-10:00pm, 4-270

THURSDAY, 9/22

Coffee Chat: Adobe
10:00-11:00am, 2-139

Coffee Chat: Squarespace
10:00-11:00am, 4-251

Coffee Chat: Driver Group
10:00-11:00am, 2-146

Coffee Chat: Vivint Smart Home
10:00-11:00am, TBA

Coffee Chat: Asana
11:00am-12:00pm, 2-146

Coffee Chat: Blizzard Entertainment
11:00am-12:00pm, 4-251

Coffee Chat: Lyft
11:00am-12:00pm, 66-148

Coffee Chat: Quantlab Financial
11:00am-12:00pm, TBA

Coffee Chat: iboss Cybersecurity
12:00-1:00pm, 8-119

Coffee Chat: Quantcast
12:00-1:00pm, 8-205

Coffee Chat: BAML
12:00-1:00pm, 4-146

Coffee Chat: General Motors
12:00-1:00pm, 4-251

Coffee Chat: Rev
1:00-2:00pm, 4-146

Coffee Chat: The MathWorks
1:00-2:00pm, 4-253

Coffee Chat: Bridgewater
1:00-2:00pm, 2-136

Coffee Chat: Green Hills Software
1:00-2:00pm, 2-139

Coffee Chat: SanDisk
2:00-3:00pm, 56-169

Coffee Chat: HERE
2:00-3:00pm, 2-142

Coffee Chat: Crabel
2:00-3:00pm, 2-132

Coffee Chat: Illumio
2:00-3:00pm, 4-146

Coffee Chat: "Company X"
3:00-4:00pm, 2-151

Coffee Chat: Old Mission Capital LLC
3:00-4:00pm, 4-149

Coffee Chat: Sandia
3:00-4:00pm, 56-169

Coffee Chat: Blend
3:00-4:00pm, 2-132

Info Session: MemSQL
4:00-5:00pm, 4-237

Info Session: NVIDIA
4:00-5:00pm, 4-270

Info Session: Five Rings Capital
6:00-7:00pm, 2-190

Info Session: Newton
6:00-7:00pm, 4-163

Coffee Chat: Intel Corporation
6:00-7:00pm, 2-139

Info Session: Yelp
7:00-8:00pm, 4-370

Info Session: AB Initio
7:00-8:00pm, 4-163

Coffee Chat: Etsy
7:00-8:00pm, 2-142

Info Session: Two Sigma
7:00-8:00pm, 4-237

Coffee Chat: OC&C Strategy Consultants
8:00-9:00pm, 2-143

Info Session: Clear Motion
8:00-9:00pm, 2-190

Info Session: Dropbox
8:00-9:00pm, 4-163

Info Session: Quora
9:00-10:00pm, 4-237

Coffee Chat: Northrop Grumman Corporation
9:00-10:00pm, 2-139

Coffee Chat: Voloridge Investment Management
9:00-10:00pm, 2-142

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